

FIG.1

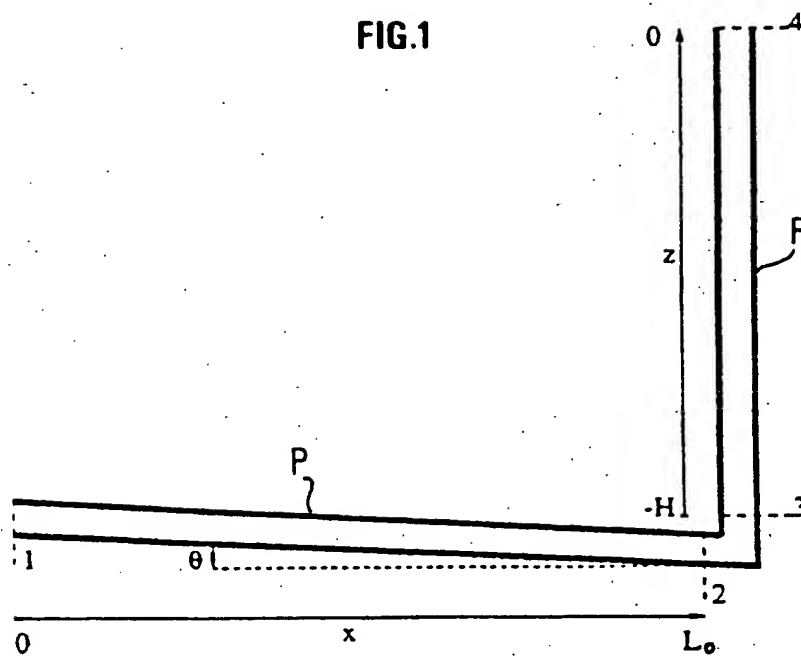


FIG.2

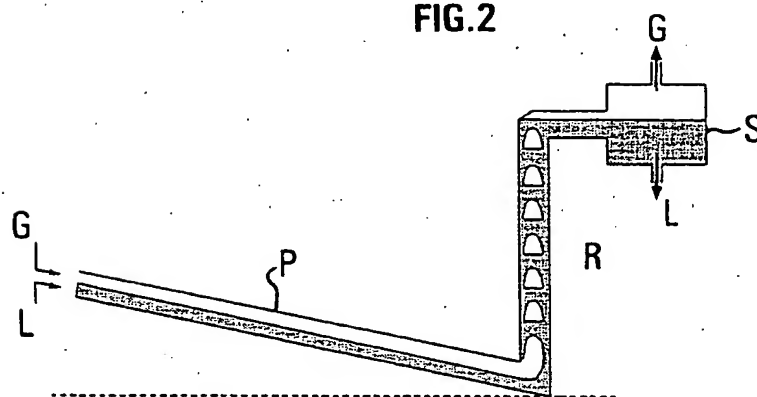


FIG.3

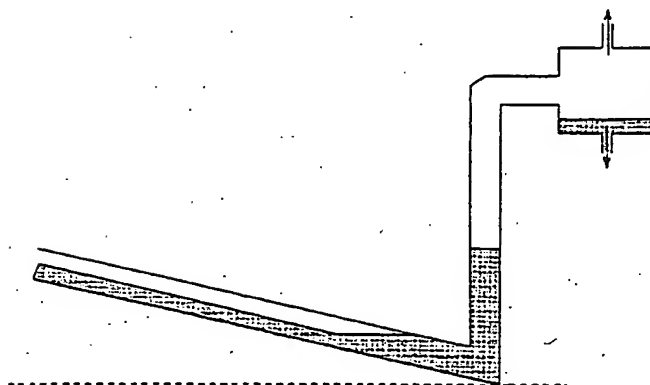


FIG.4

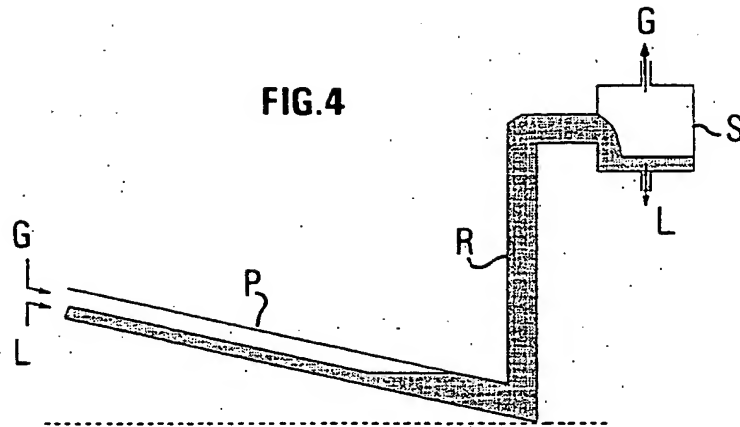


FIG.5

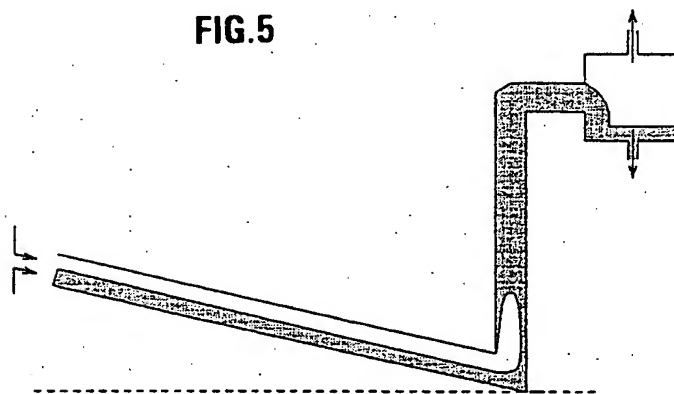


FIG.6

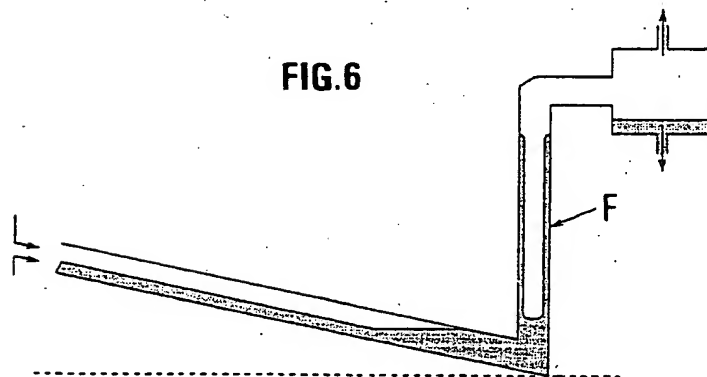
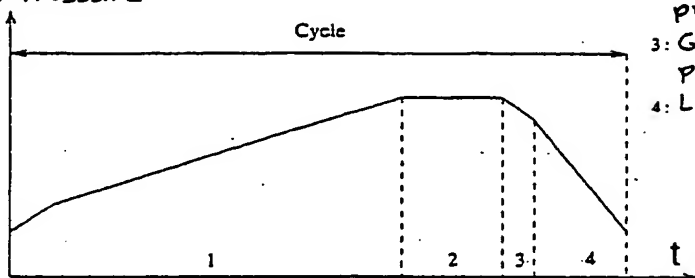


FIG. 7

Pipe Pressure

Cycle



- 1: liquid slug formation
- 2: Liquid slug production
- 3: Gas bubble penetration
- 4: Liquid fall

FIG. 8A



FIG. 8B



FIG. 8C

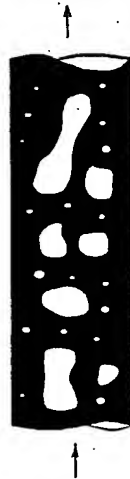


FIG. 8D

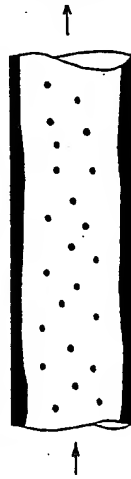


FIG. 8E



FIG. 9A



FIG. 9E



FIG. 9B



FIG. 9F



FIG. 9C



FIG. 9G



FIG. 9D



■ - L □ - G

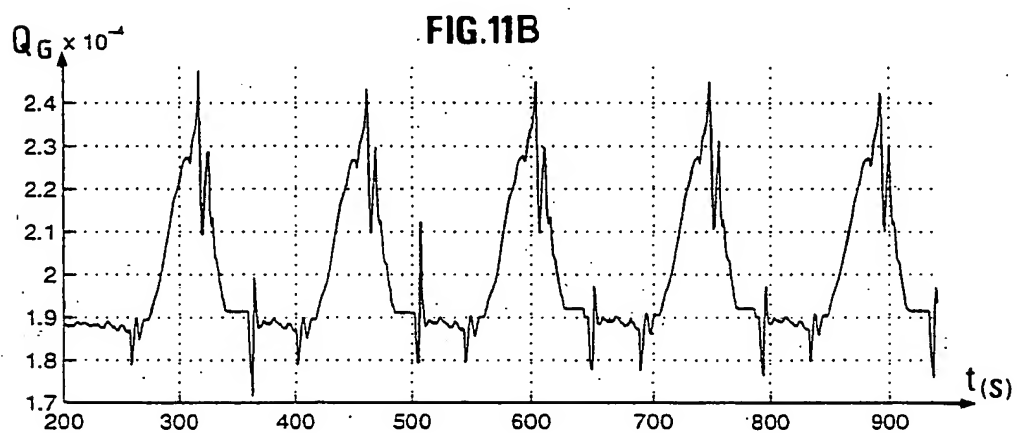
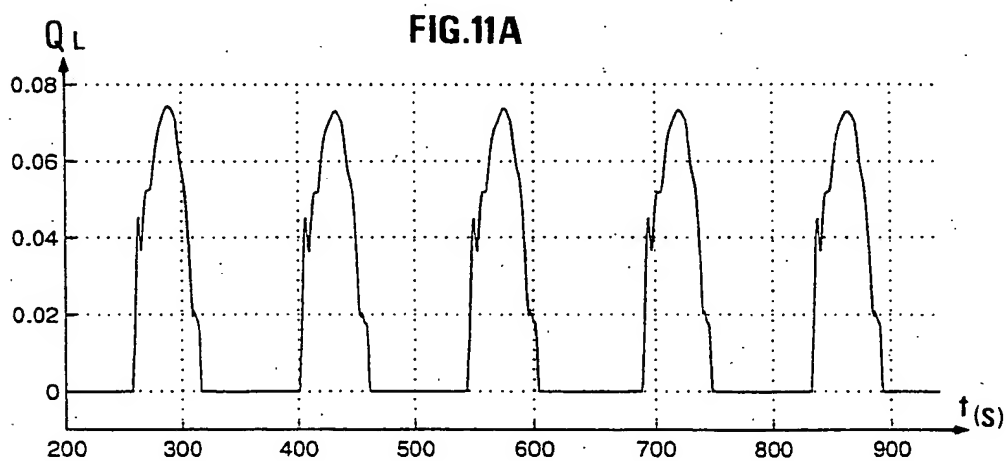
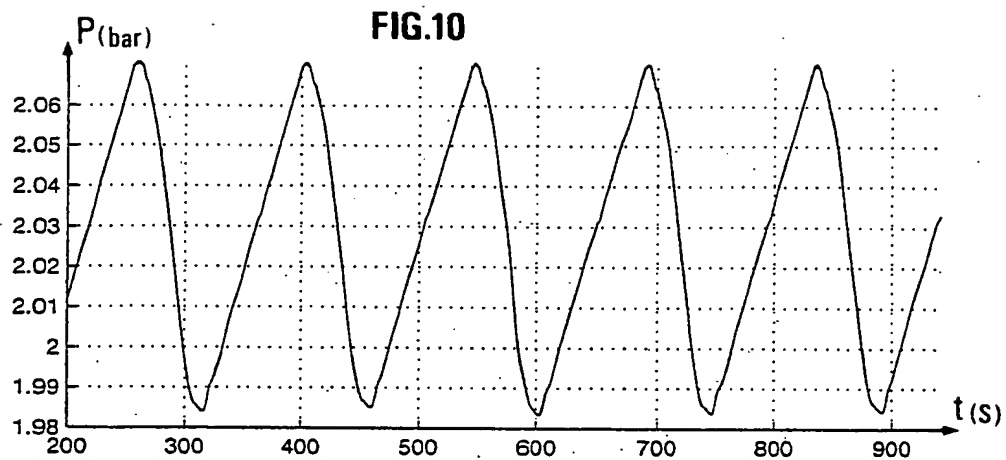


FIG.12

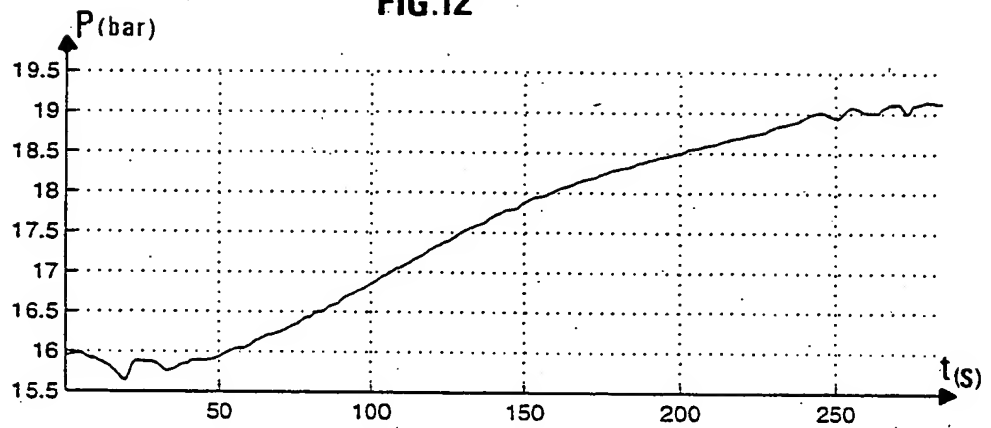


FIG.13A

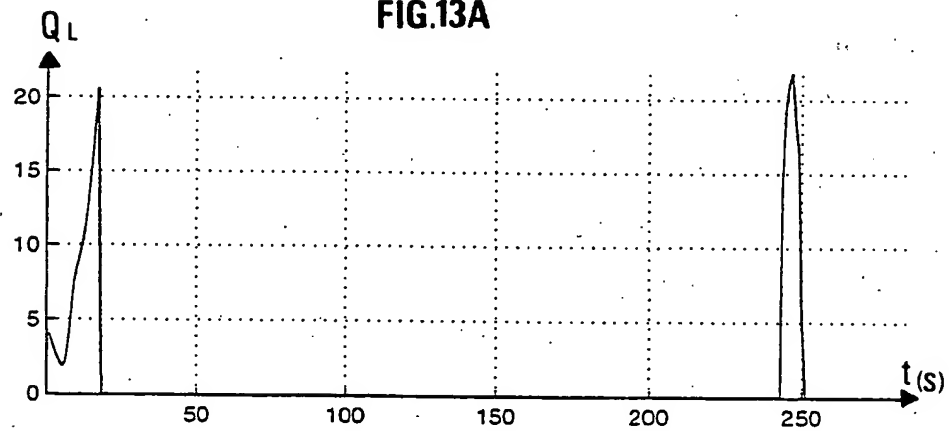
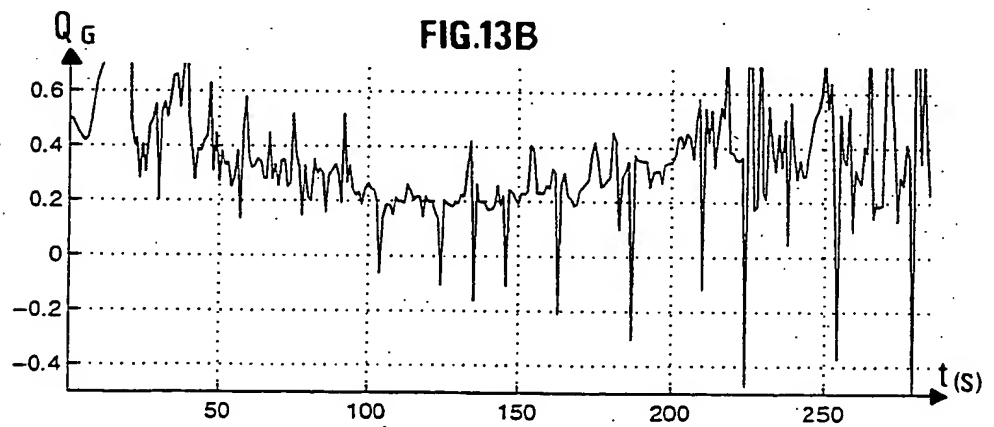


FIG.13B



Liquid volume fraction

FIG.14

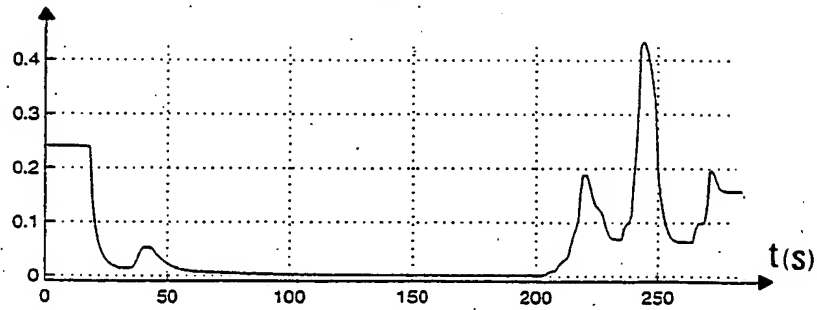
 Q_L

FIG.16A

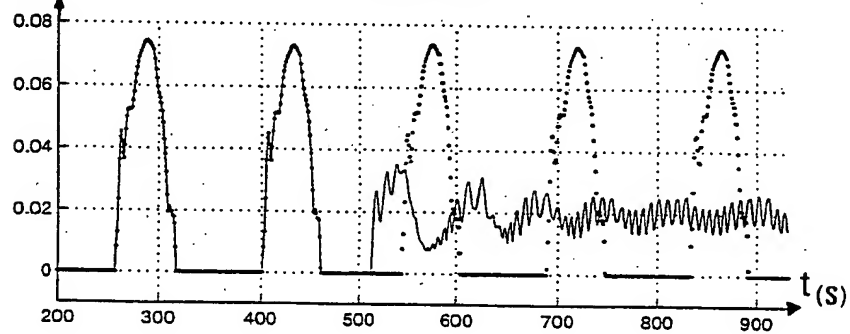
 $Q_G \times 10^{-4}$

FIG.16B

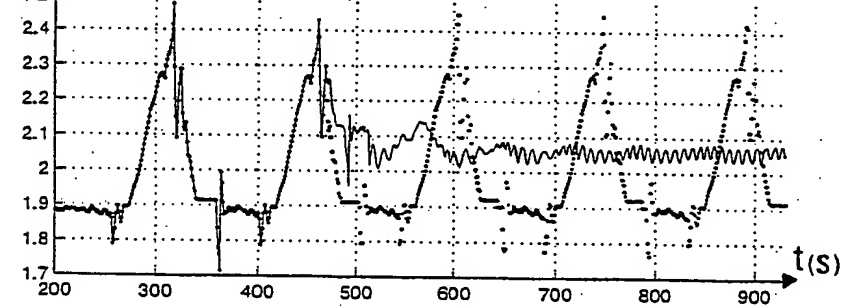
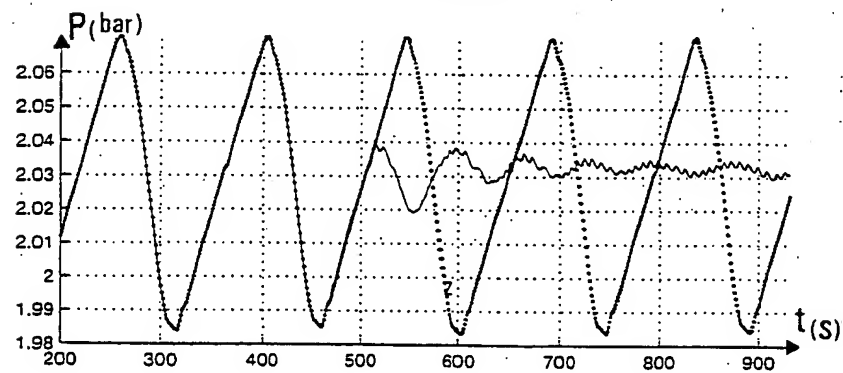
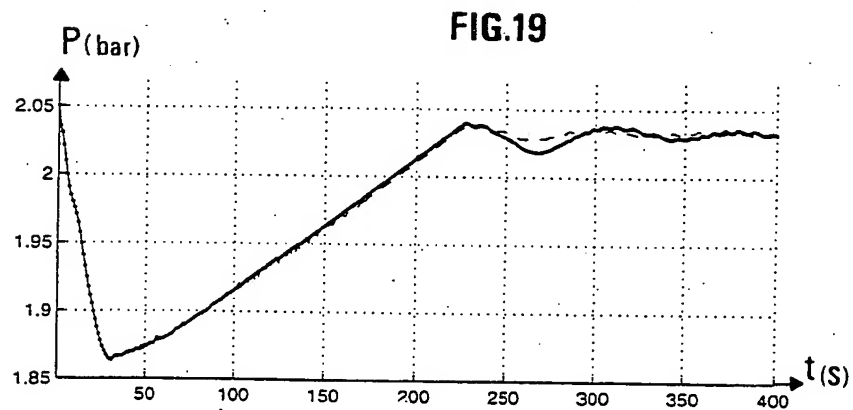
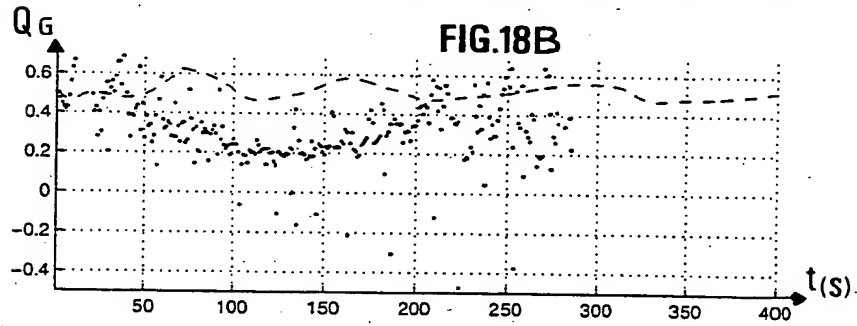
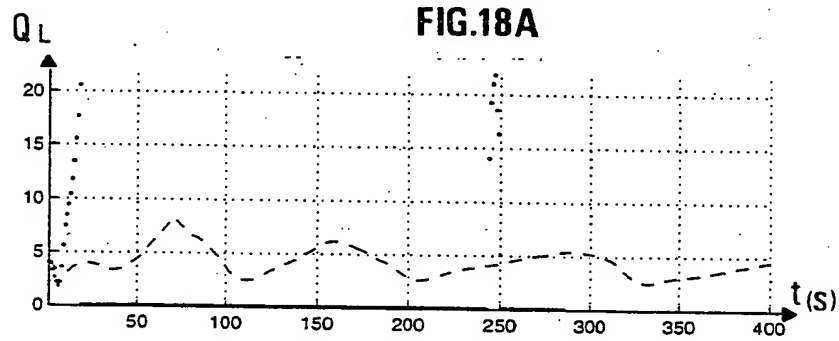
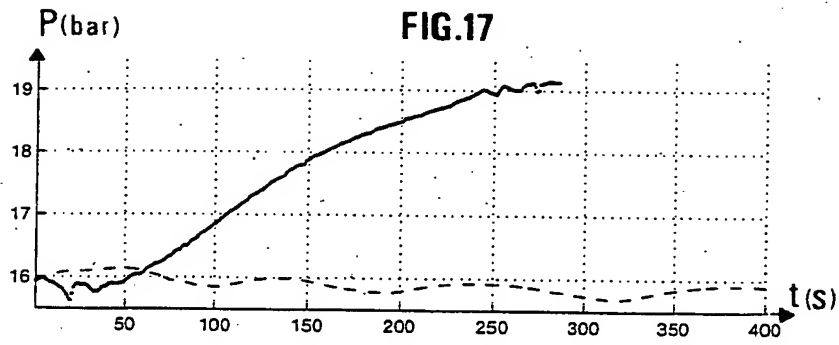
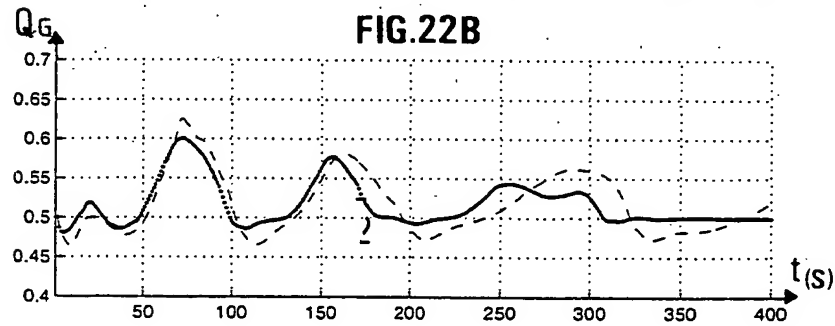
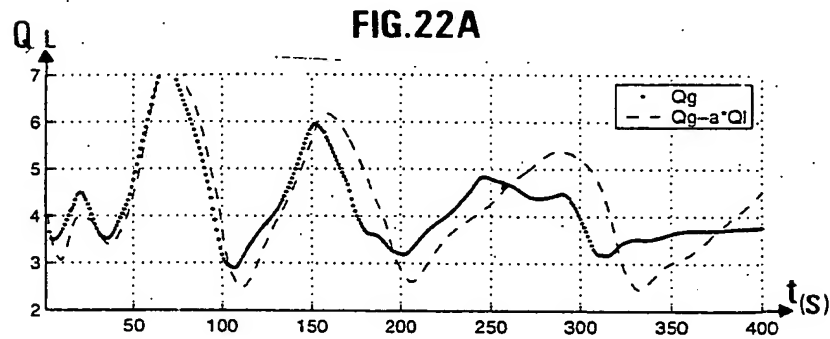
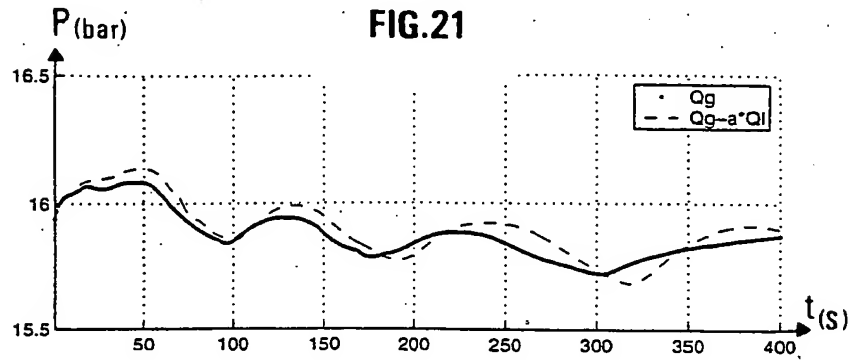
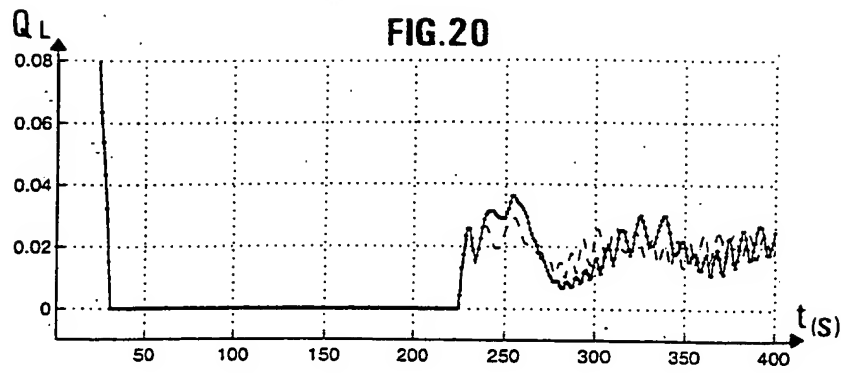


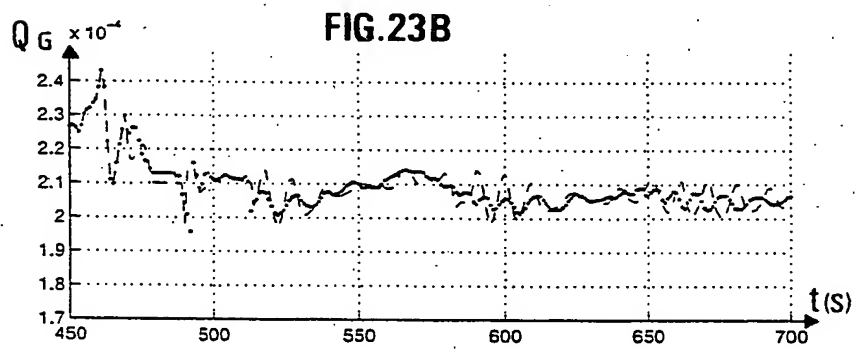
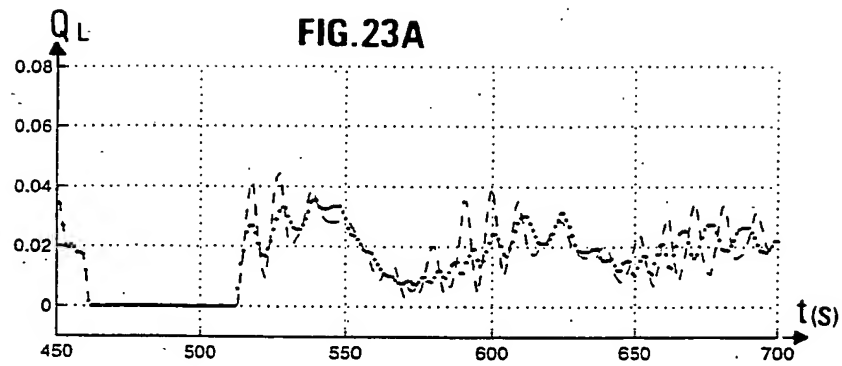
FIG.15



7/9





**FIG.24**